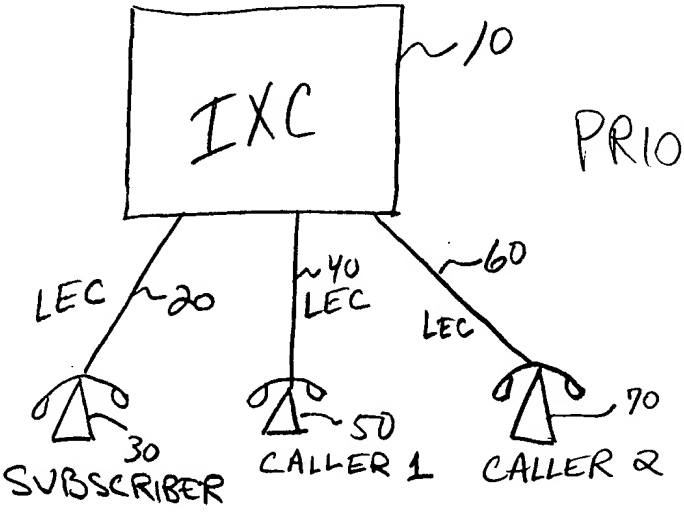


FIG. 1

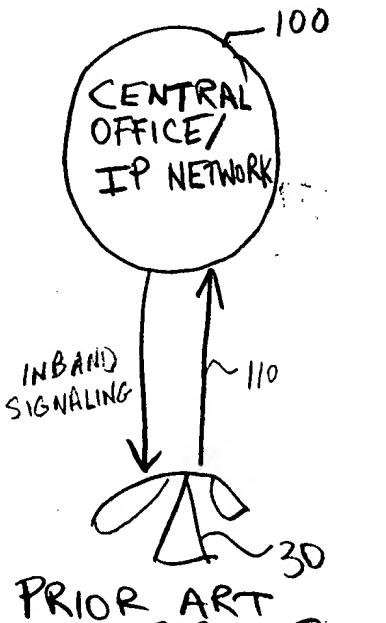


FIG. 2A

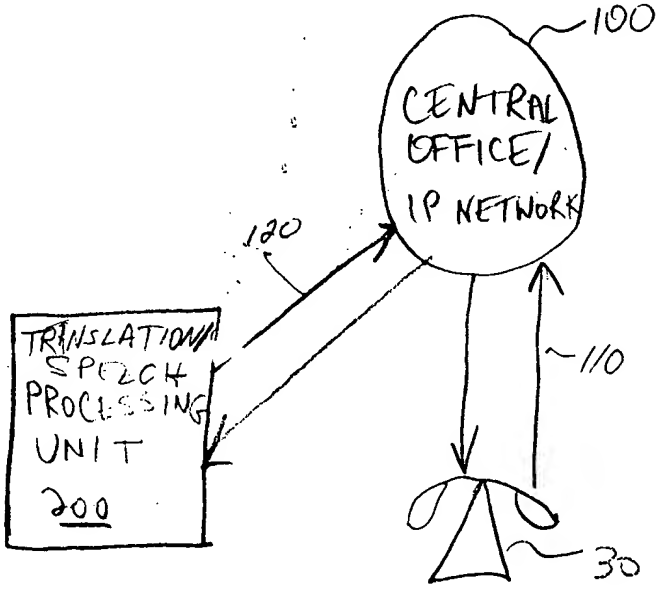


FIG. 2B

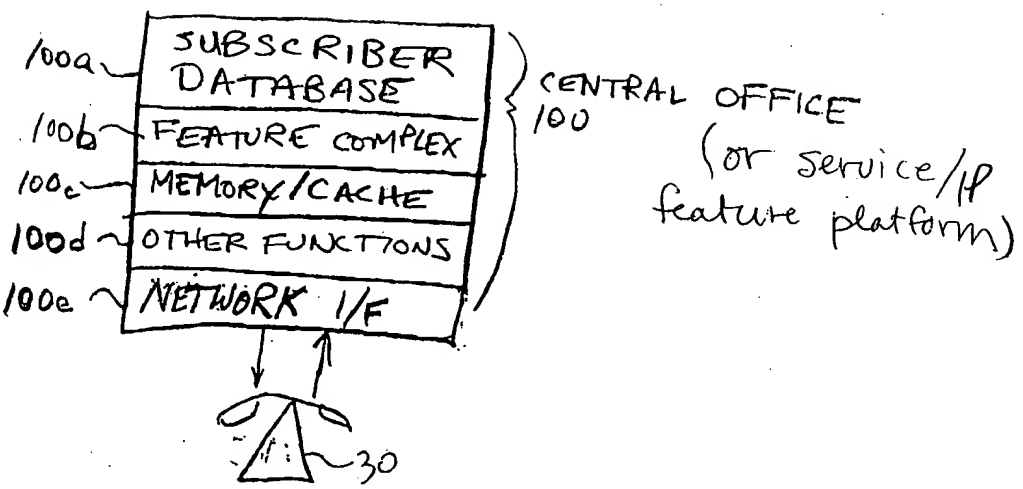

100a
SUBSCRIBER DATABASE
100b
FEATURE COMPLEX
100c
MEMORY/CACHE
100d
OTHER FUNCTIONS
100e
NETWORK I/F
CENTRAL OFFICE 100
(or service/IP feature platform)
30

FIG. 3A

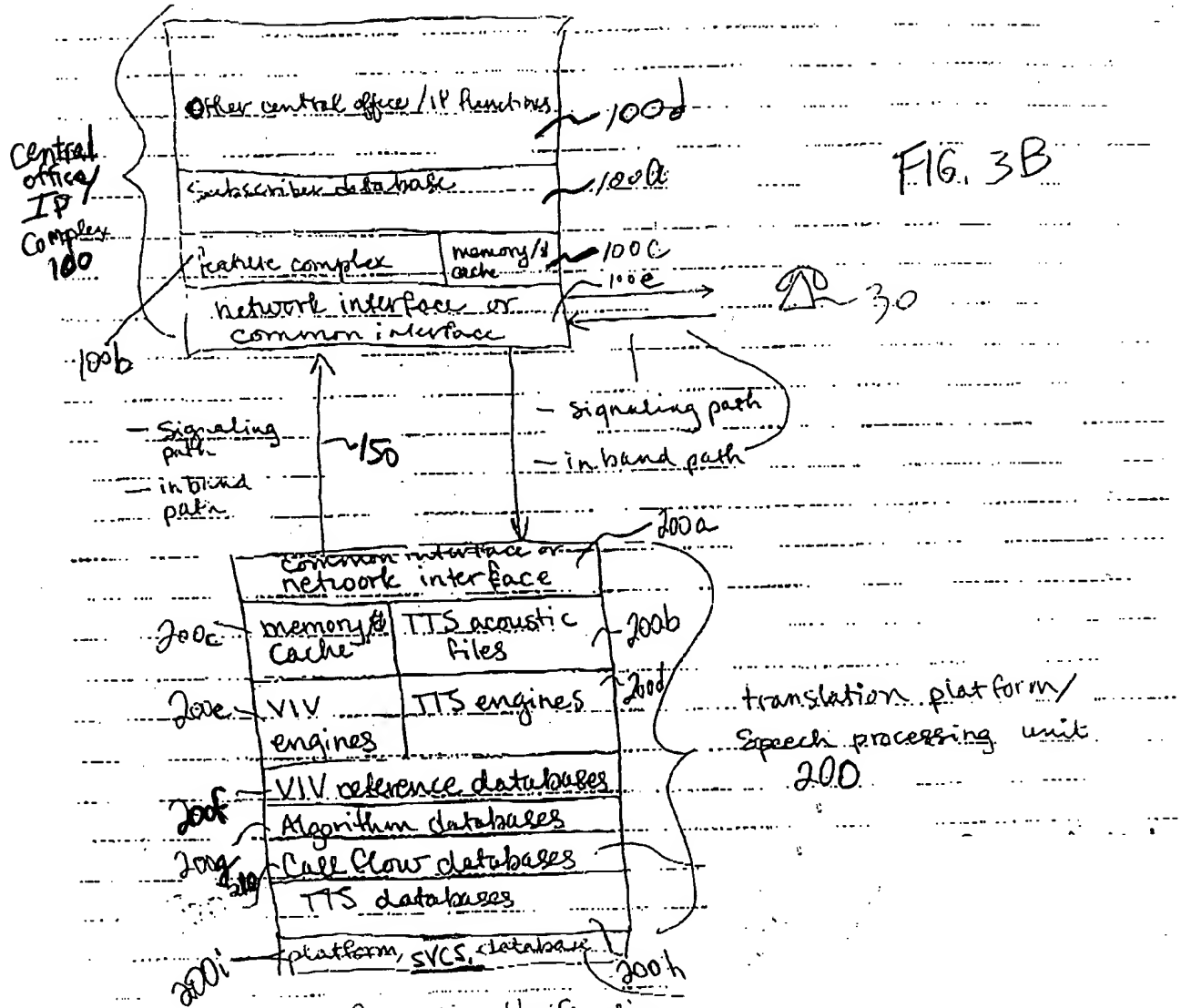


FIG. 3B

VIV = Verbal Information Verification
TTS = Text to Speech

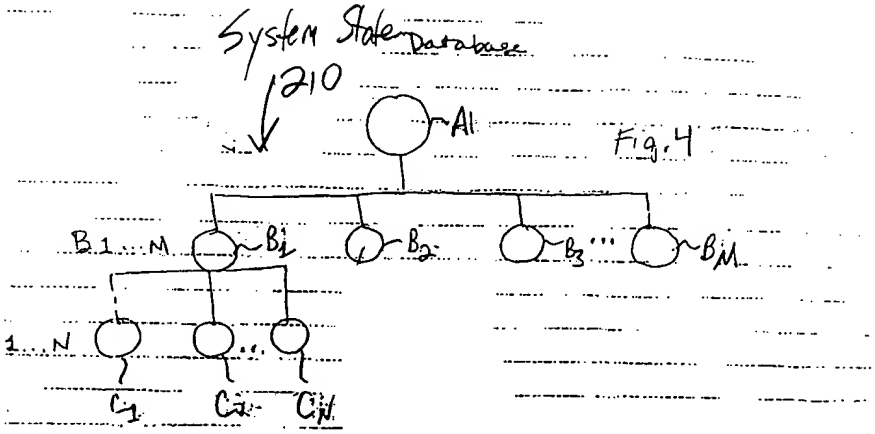


Fig. 4

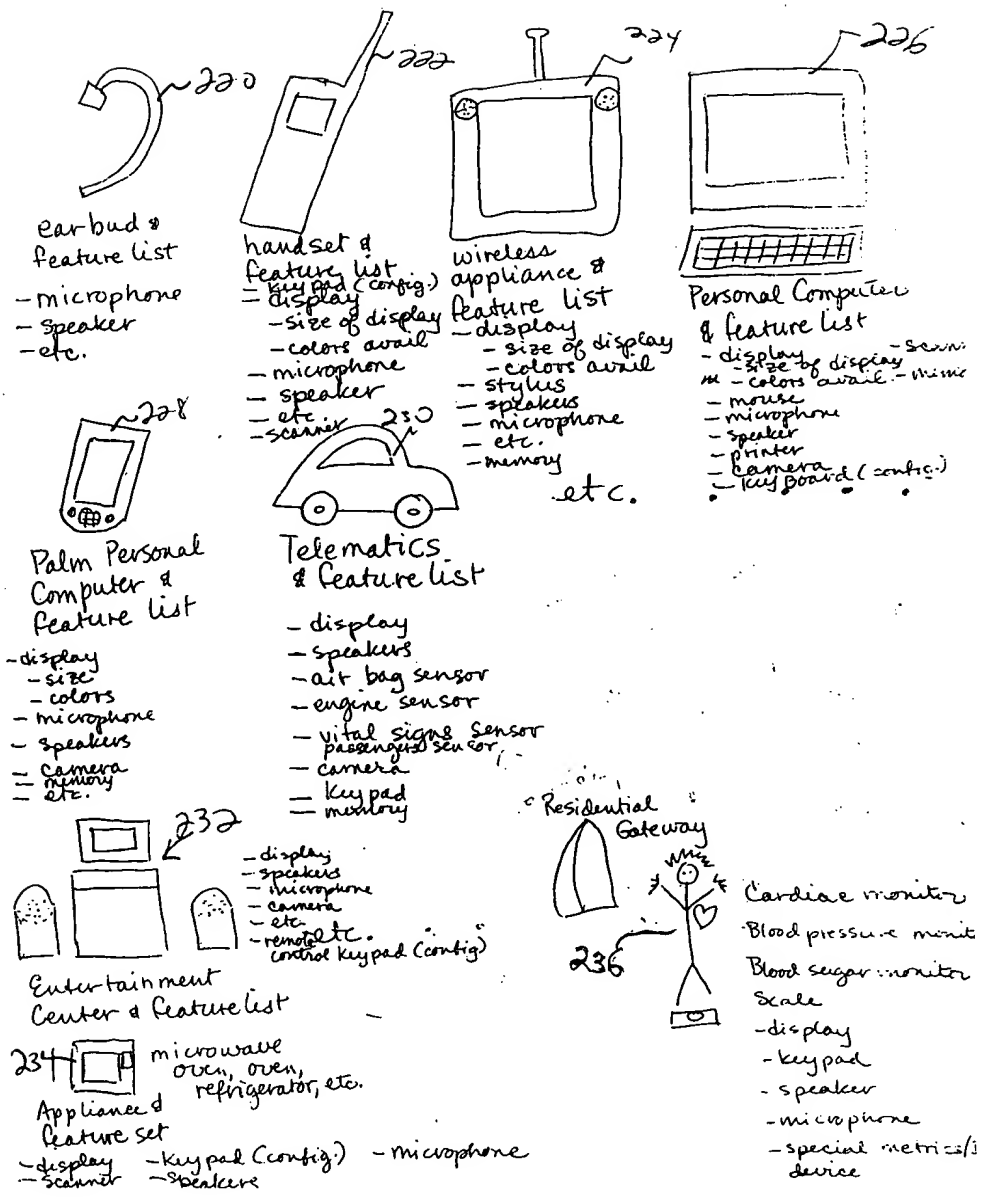

220
earbud & feature list
- microphone
- speaker
- etc.
222
handset & feature list
- keypad (config.)
- display
- size of display
- colors avail
- microphone
- speaker
- etc.
- scanner
224
wireless appliance & feature list
- display
- size of display
- colors avail
- stylus
- speakers
- microphone
- etc.
- memory
etc.
226
Personal Computer & feature list
- display
- size of display
- colors avail
- mouse
- microphone
- speaker
- printer
- camera
- keyboard (config.)
228
Palm Personal Computer & feature list
- display
- size
- colors
- microphone
- speakers
- camera
- memory
- etc.
230
Telematics & feature list
- display
- speakers
- air bag sensor
- engine sensor
- vital signs sensor
- passenger sensor
- camera
- keypad
- memory
232
- display
- speakers
- microphone
- camera
- etc.
- remote control keypad (config)
Entertainment Center & feature list
234
microwave oven, oven, refrigerator, etc.
Appliance & feature set
- display
- scanner
- keypad (config.)
- speakers
- microphone
Residential Gateway
236
Cardiac monitor
Blood pressure monit
Blood sugar monitor
Scale
- display
- keypad
- speaker
- microphone
- special metrics/1 device

FIG. 5A

Database lookup for target device/s

240

Profiles	format for features translated	speaker	microp.	display	size	color	keypad	size	capacity	etc
earbud 1	Form 1	✓	✓							
earbud n handset 1	Form 1	✓	✓	✓	16x6		Type 1			
handset n	Form 10	✓	✓	✓	16x2		Type N			
appliance 1	Form 12	✓	✓	✓	40x60		Type 1			
appliance N	Form 100	✓	✓				Type 1			
computer 1	Form 110	✓	✓							
computer N										

FIG. 5B

FIG, 5C

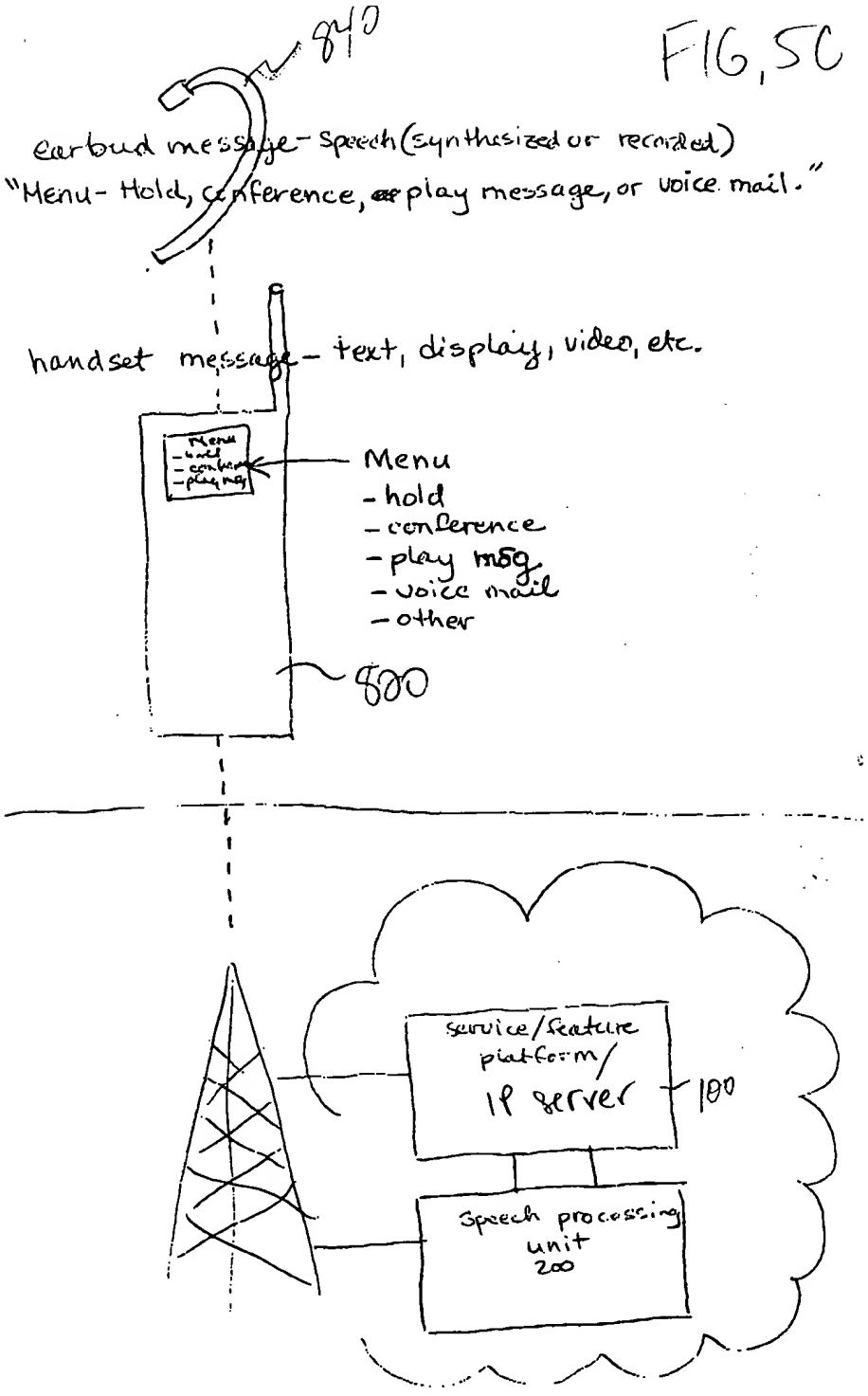

940
earbud message - Speech (synthesized or recorded)
"Menu - Hold, conference, play message, or voice mail."
handset message - text, display, video, etc.
Menu
- hold
- conference
- play msg
- voice mail
- other
800
service/feature platform/ IP server
100
Speech processing unit 200

Fig 6A

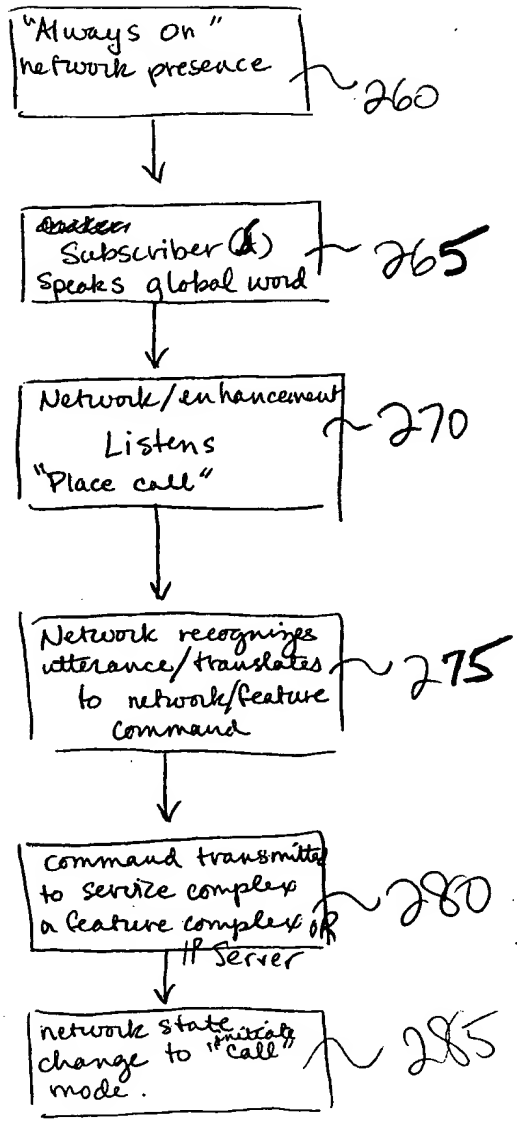

"Always on" network presence
260
Subscriber (A) Speaks global word
265
Network/enhancement Listens "Place call"
270
Network recognizes utterance/translates to network/feature command
275
command transmitted to service complex a feature complex OR IP Server
280
network state change to "initiate call" mode.
285

FIG. 6A

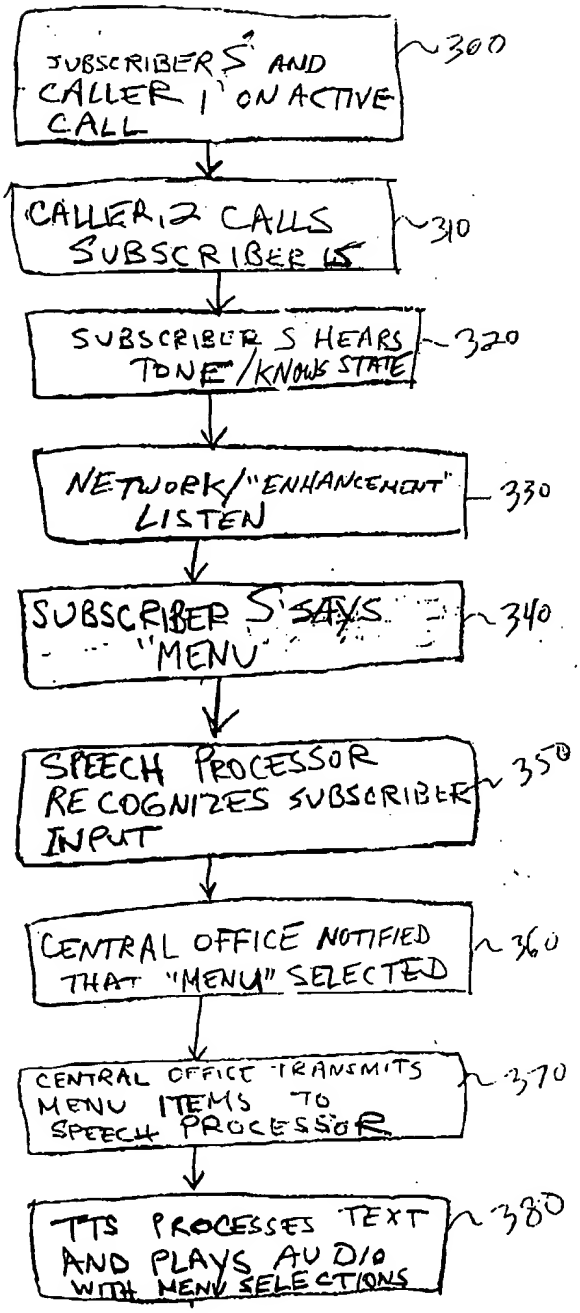

SUBSCRIBER 5 AND CALLER 1 ON ACTIVE CALL
300
CALLER 2 CALLS SUBSCRIBER 5
310
SUBSCRIBER 5 HEARS TONE/KNOWS STATE
320
NETWORK/"ENHANCEMENT" LISTEN
330
SUBSCRIBER 5 SAYS "MENU"
340
SPEECH PROCESSOR RECOGNIZES SUBSCRIBER INPUT
350
CENTRAL OFFICE NOTIFIED THAT "MENU" SELECTED
360
CENTRAL OFFICE TRANSMITS MENU ITEMS TO SPEECH PROCESSOR
370
TTS PROCESSES TEXT AND PLAYS AUDIO WITH MENU SELECTIONS
380

Fig. 6B

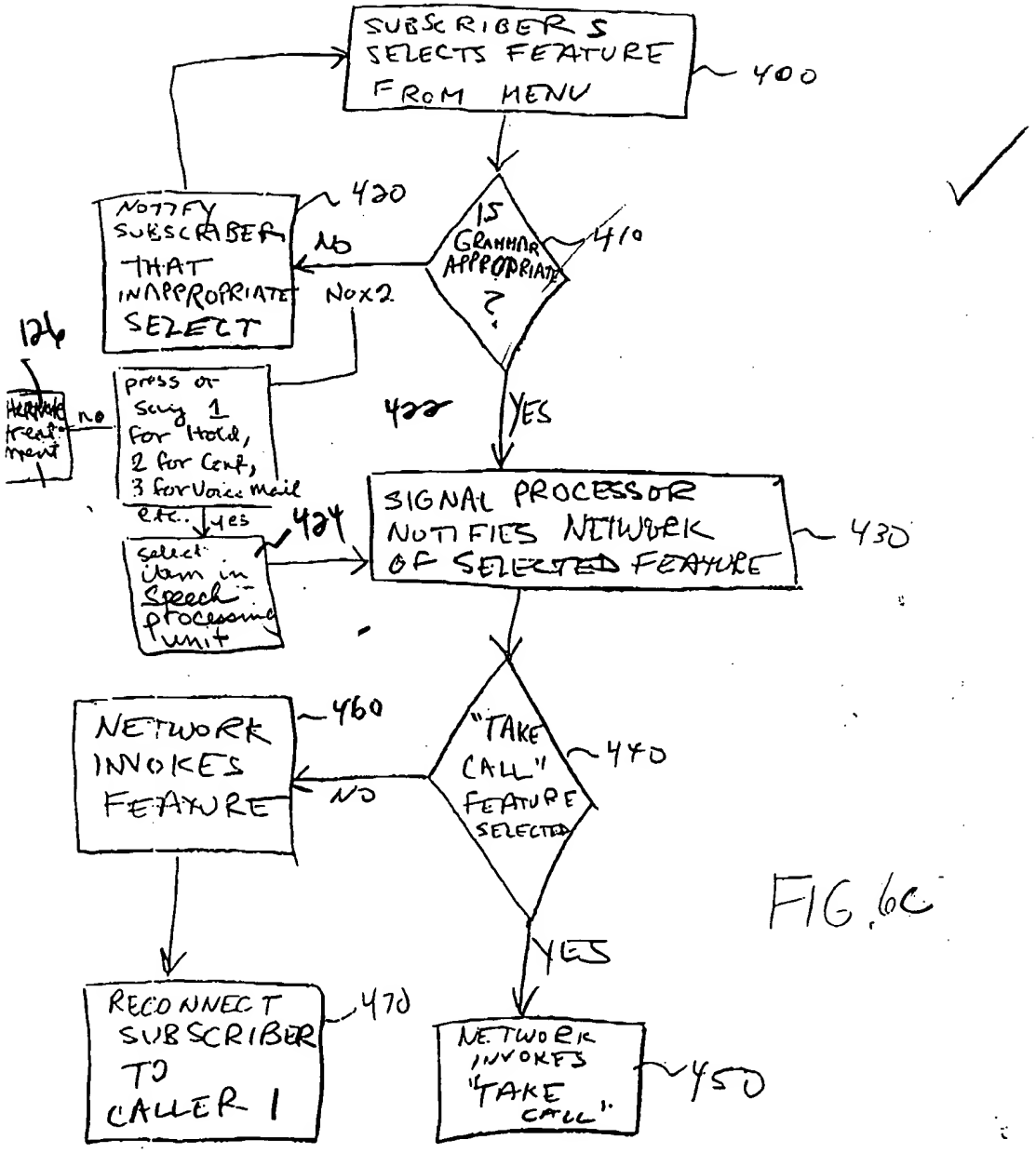

SUBSCRIBER SELECTS FEATURE FROM MENU
400
IS GRAMMAR APPROPRIATE ?
410
NO
NOTIFY SUBSCRIBER THAT INAPPROPRIATE SELECT
420
NOx2
press or say 1 for Hold, 2 for Conf, 3 for Voice mail etc.
YES
select item in speech processing unit
424
YES
SIGNAL PROCESSOR NOTIFIES NETWORK OF SELECTED FEATURE
430
"TAKE CALL" FEATURE SELECTED
440
NO
NETWORK INVOKES FEATURE
460
RECONNECT SUBSCRIBER TO CALLER 1
470
YES
NETWORK INVOKES "TAKE CALL"
450

FIG. 6C

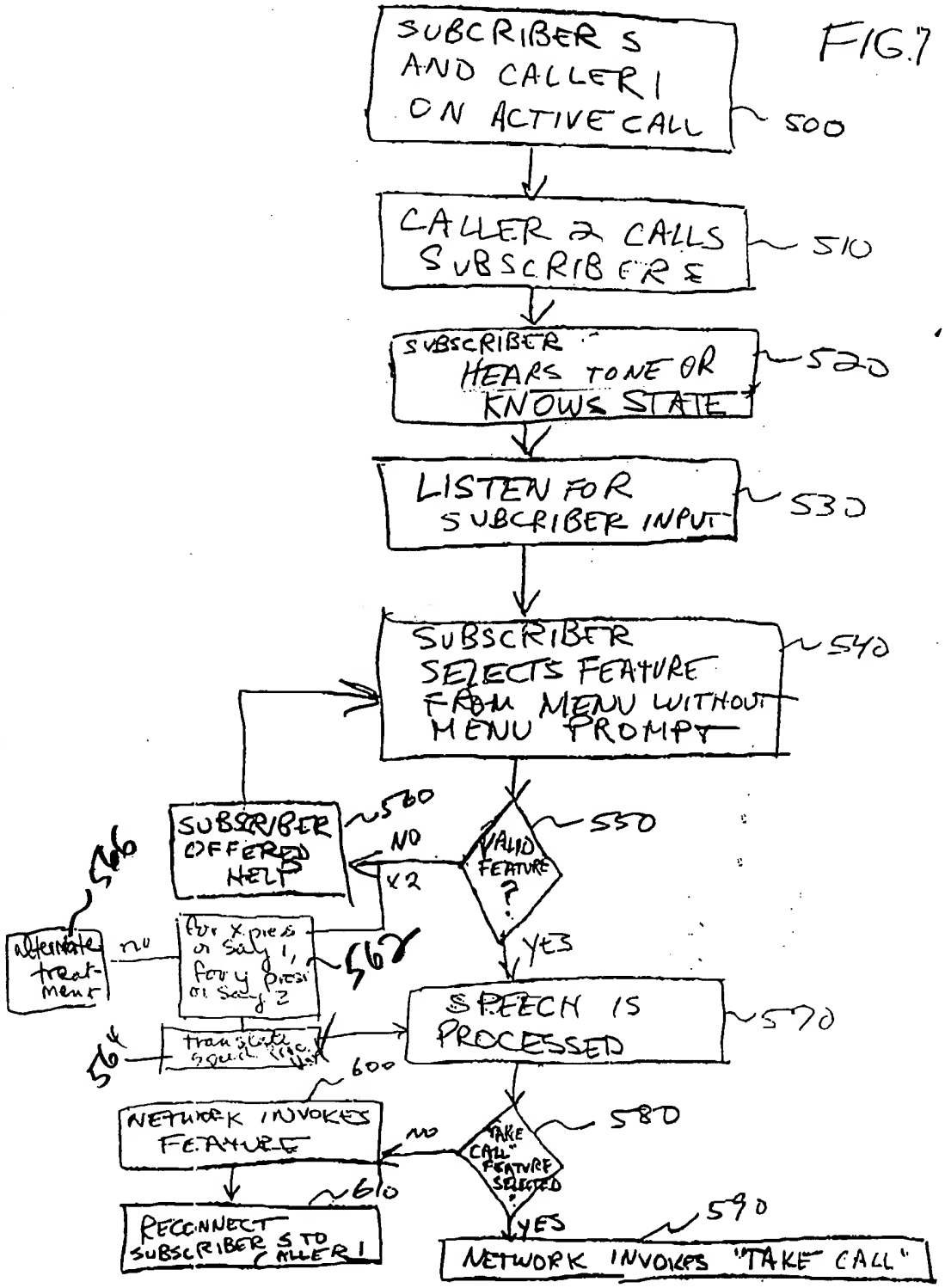

SUBCRIBER S AND CALLER 1 ON ACTIVE CALL
500
CALLER 2 CALLS SUBSCRIBER S
510
SUBSCRIBER HEARS TONE OR KNOWS STATE
520
LISTEN FOR SUBCRIBER INPUT
530
SUBSCRIBER SELECTS FEATURE FROM MENU WITHOUT MENU PROMPT
540
VALID FEATURE ?
550
NO
X2
SUBSCRIBER OFFERED HELP
560
alternate treatment
no
for X press or say 1, for Y press or say 2
562
YES
SPEECH IS PROCESSED
570
transfer, disc.
600
NETWORK INVOKES FEATURE
610
TAKE CALL" FEATURE SELECTED ?
580
no
YES
RECONNECT SUBSCRIBER S TO CALLER 1
NETWORK INVOKES "TAKE CALL"
590

FIG.7

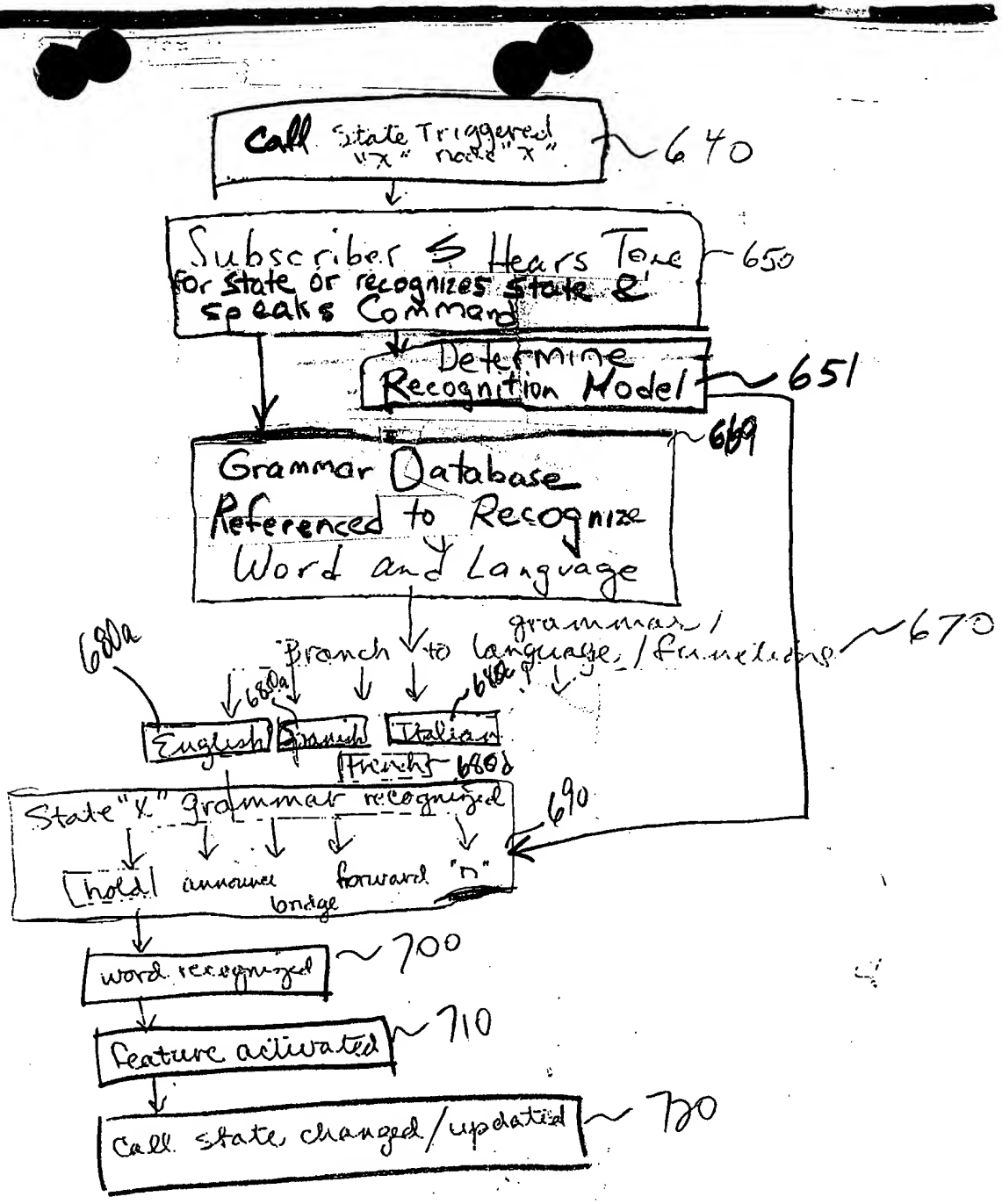
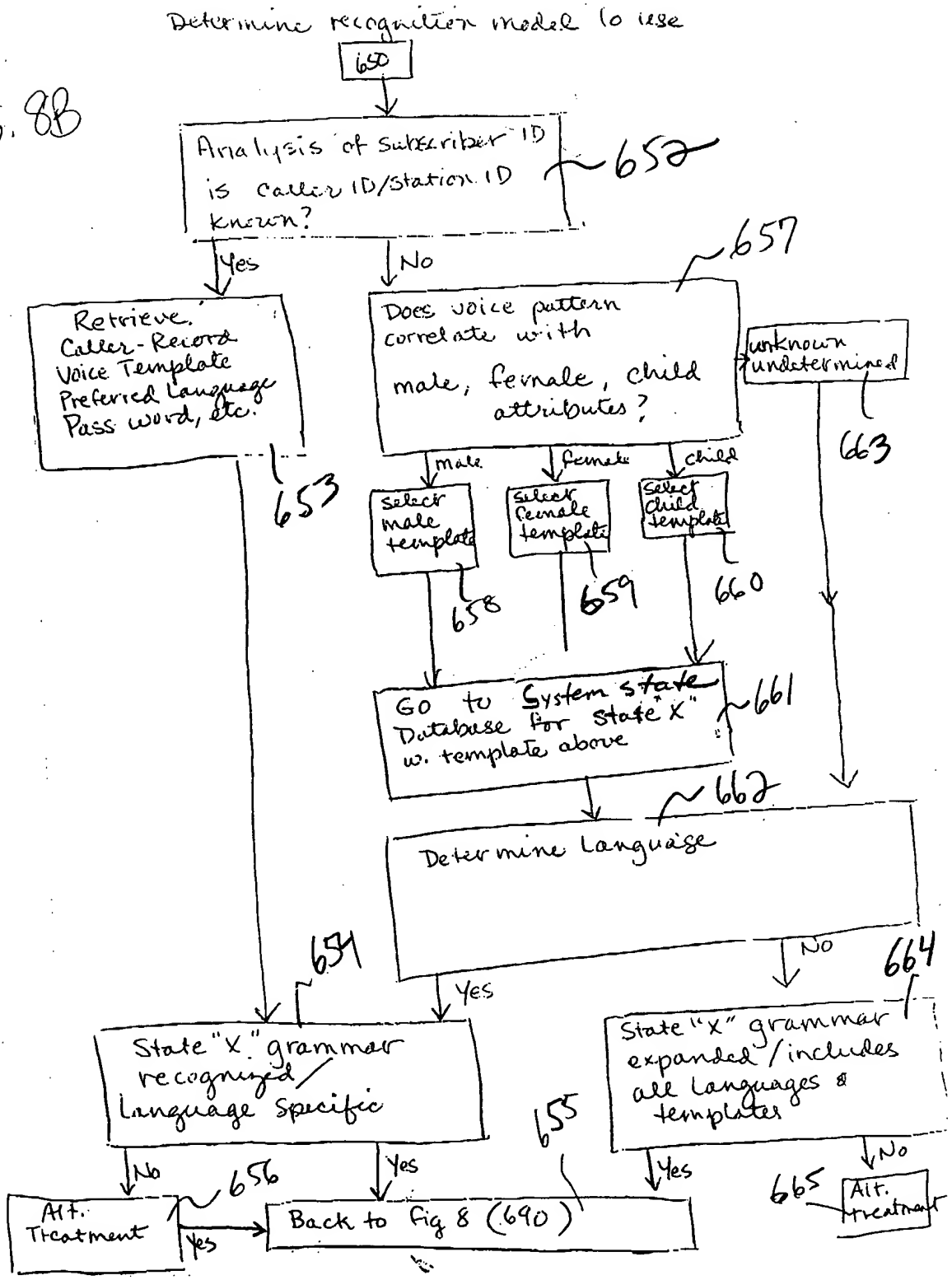

Call State Triggered "X" node "X"
640
Subscriber Hears Tone for State or recognizes State & speaks Command
650
Determine Recognition Model
651
669
Grammar Database Referenced to Recognize Word and Language
680a
Branch to grammar / language / translation
670
680a
680b
680c
680d
English
Spanish
Italian
French
State "X" grammar recognized
690
hold
announce
bridge
forward "n"
word recognized
700
feature activated
710
Call state changed / updated
720

FIG. 8A

FIG. 8B


Determine recognition model to use
650
Analysis of Subscriber ID is caller ID/Station ID known?
652
Yes
No
Retrieve Caller-Record Voice Template Preferred Language Pass word, etc.
653
657
Does voice pattern correlate with male, female, child attributes?
unknown undetermined
663
male
female
child
Select male template
Select female template
Select child template
658
659
660
Go to System state Database for state "X" w. template above
661
662
Determine Language
Yes
No
654
664
State "X" grammar recognized/ Language specific
State "X" grammar expanded/includes all languages & templates
655
No
Yes
Yes
No
Alt. Treatment
656
Yes
Back to fig 8 (690)
665
Alt. Treatment

Caller-Record Database

666

Caller-ID/ Station-ID	Cust ID	Voice Template	Password/ Key	Pref. Language	Subscription Information
732555-1111	0231	File 0231	turtle_	English	remote access
732 555 2222	0232	File 0232	martian	English	Local/ Regional
732 555 3333	0233	File 0233	orange	English	Remote access

FIG. 8C

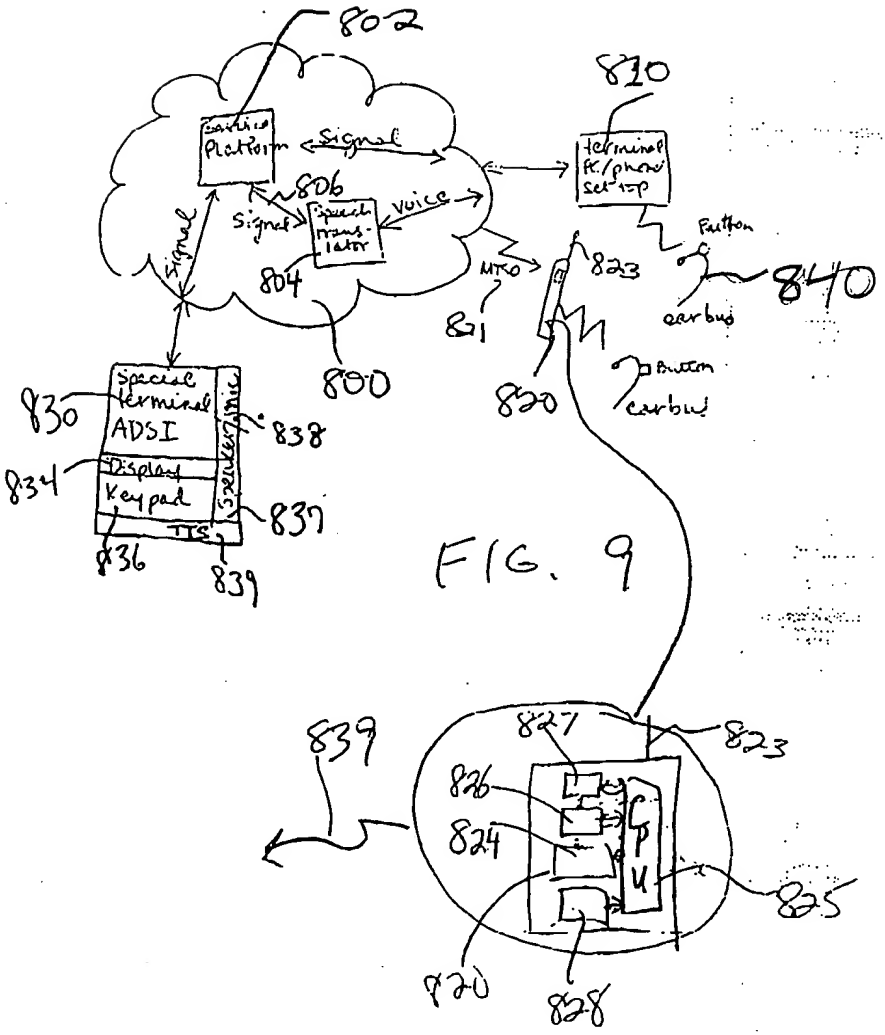

802
Carrier Platform
Signal
806
Signal
Speech translator
voice
804
Signal
800
810
terminal H./phone set-up
Button
840
earbud
MIC
81
823
820
Button
earbud
Special terminal ADSI
838
Display
Keypad
834
837
TTS
836
839
Speaker/mic
827
823
826
824
CPU
825
820
828
839

FIG. 9

FIG. 10A →

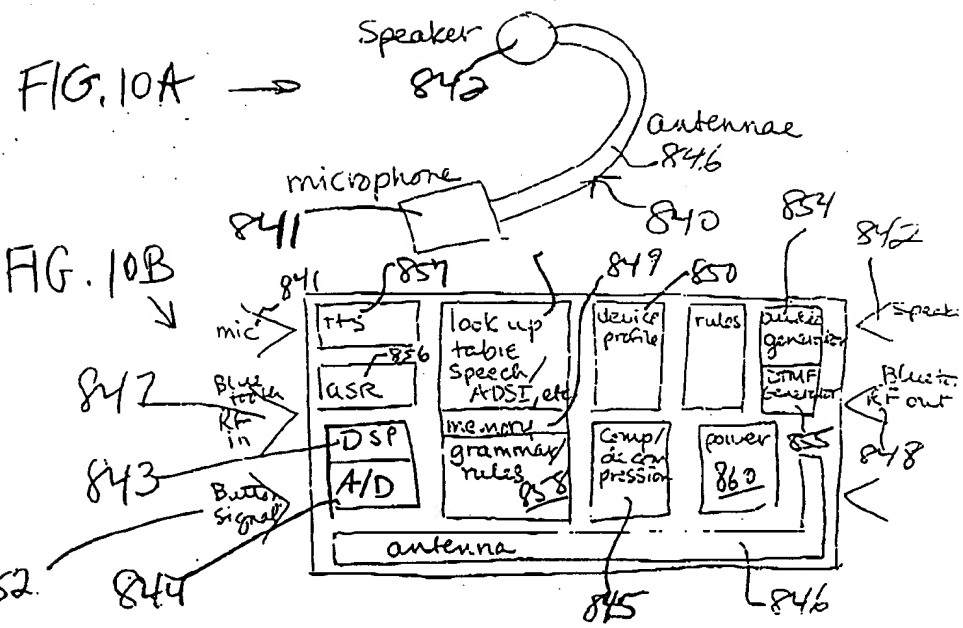
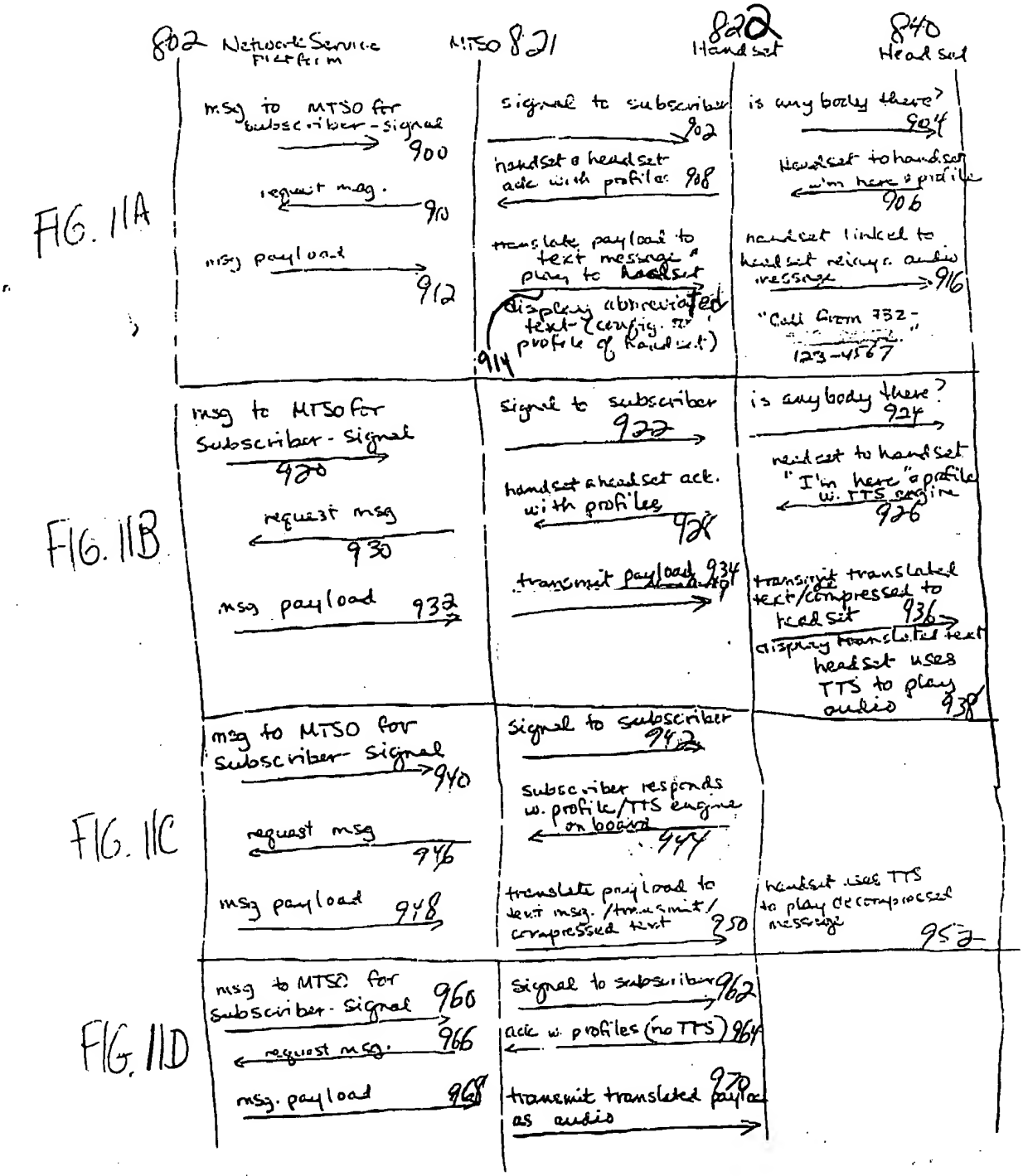


FIG. 10B ↘


802 Network Service Platform
MTSO 821
822 Handset
840 Head set
msg to MTSO for subscriber-signal 900
request msg. 910
msg payload 912
signal to subscriber 902
handset & headset ack with profiles 908
translate payload to text message & play to headset
display abbreviated text (config. per profile of handset) 914
is anybody there? 904
Headset to handset "I'm here" profile 906
handset linked to headset relays audio message 916
"Call from 732-123-4567"
FIG. 11A
msg to MTSO for subscriber-signal 920
request msg 930
msg payload 932
signal to subscriber 922
handset & headset ack. with profiles 924
transmit payload 934
is anybody there? 924
headset to handset "I'm here" profile w. TTS engine 926
transmit translated text/compressed to headset 936
displaying translated text
headset uses TTS to play audio 938
FIG. 11B
msg to MTSO for subscriber signal 940
request msg 946
msg payload 948
signal to subscriber 942
subscriber responds w. profile/TTS engine on board 944
translate payload to text msg./transmit/compressed text 950
headset uses TTS to play decompressed message 952
FIG. 11C
msg to MTSO for subscriber-signal 960
request msg. 966
msg. payload 968
signal to subscriber 962
ack w. profiles (no TTS) 964
transmit translated payload as audio 970
FIG. 11D

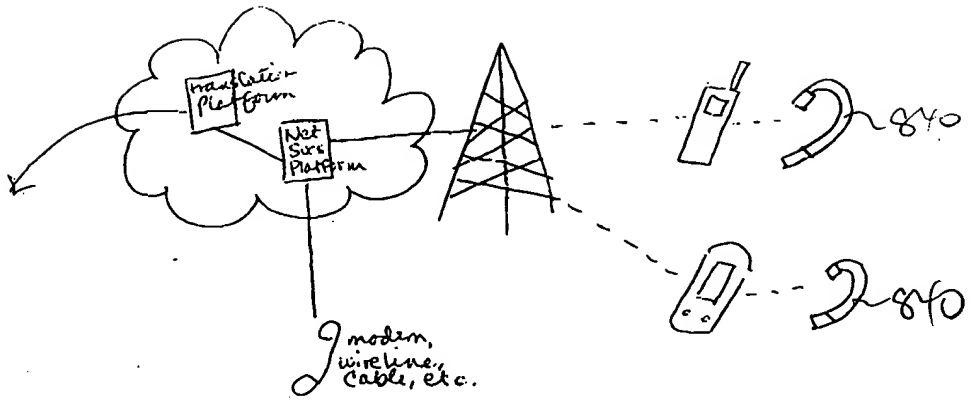

Application Platform
Net Svcs Platform
840
840
modem, wireline, cable, etc.

FIG. 12

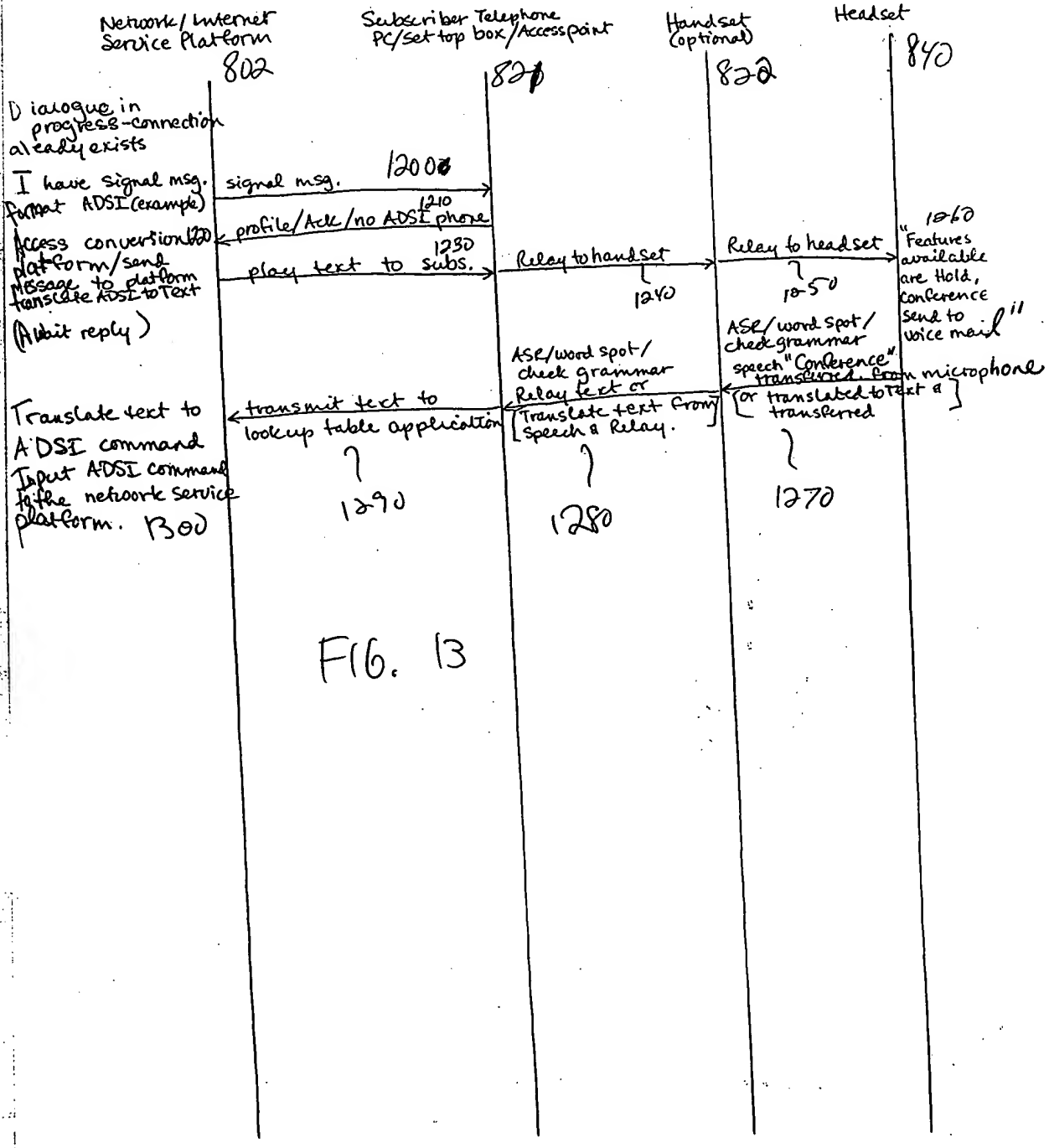
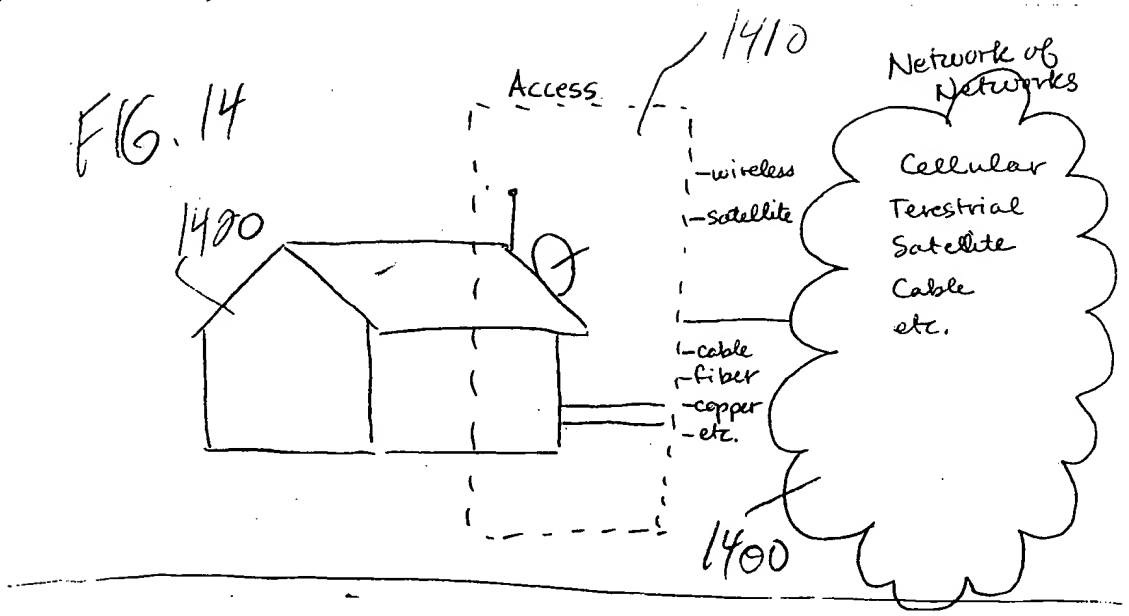

Network/Internet Service Platform
802
Subscriber Telephone PC/set top box/Access point
820
Handset (optional)
830
Headset
840
Dialogue in progress-connection already exists
I have signal msg. format ADSI (example)
signal msg.
1200
profile/Ack/no ADSI phone
1210
Access conversion platform/send message to platform translate ADSI to Text
1220
play text to subs.
1230
Relay to handset
1240
Relay to headset
1250
"Features available are Hold, Conference send to voice mail"
1260
(Abbit reply)
ASR/word spot/check grammar
Relay text or
Translate text from Speech & Relay.
ASR/word spot/check grammar speech "Conference" transferred from microphone
[or translated to Text & transferred]
Translate text to ADSI command
Input ADSI command to the network service platform.
1300
transmit text to lookup table application
1290
1280
1270

FIG. 13

Nc

FIG. 14


1410
Access
Network of Networks
Cellular
Terrestrial
Satellite
Cable
etc.
-wireless
-satellite
-cable
-fiber
-copper
-etc.
1400
1400